

**ABSTRACT**

A semiconductor device includes a silicon layer on an insulating layer. The silicon layer has a first area and a second area. The FD-MOSFET is formed in the first area and the PD-MOSFET formed in the second area. The semiconductor device of the present invention satisfies the following formulas; the thickness of the silicon layer is 28 nm to 42 nm, the impurity concentration  $D_f$  cm<sup>-3</sup> of the first area is  $D_f \leq 9.29 * 10^{15} * (62.46 - ts)$  and  $D_f \leq 2.64 * 10^{15} * (128.35 - ts)$ , the impurity concentration  $D_p$  of the second area is  $D_p \leq 9.29 * 10^{15} * (62.46 - ts)$  and  $D_p \leq 2.64 * 10^{15} * (129.78 - ts)$ .